

REMARKS

The foregoing amendment and the following arguments are provided generally to impart precision to the claims, by more particularly pointing out the invention, rather than to avoid prior art.

Claims 1, 2 and 5-7 are pending in this application. Reconsideration and withdrawal of the rejections set forth in the Office Action dated May 13, 2009, are respectfully requested in view of the remarks below.

35 U.S.C. §103

Claims 1 and 2

Claims 1 and 2 are rejected under 35 U.S.C. §103(a), as being unpatentable over Weichmann, et al. (U.S. Patent No. 6,580,524 B1) in view of Endo, et al. (U.S. Patent No. 6,637,327 B2) in further view of Shiraishi (U.S. Patent No. 6,999,200 B2).

Weichmann et al. generally refers to the steps of determining a profile mostly closely related to a current print job from an accumulated profile pool, and then printing the print job using the determined profile.

Endo, et al. generally refers to a correction amount for each color in accordance with a stretch amount of a printing paper sheet is read out, and an image exposure start position is adjusted on the basis of the correction amount read out.

Shiraishi generally refers to a color correction of image data carried out with reference to generated profile data.

Regarding claim 1, Endo et al. generally refers to a method for deforming a printing paper sheet into a trapezoidal shape that is employed to correct fan-out. However, Endo et al. does not teach the following features.

Claim 1 recites “performing the elongation/contraction correction in the direction in which the printing medium is to be elongated or contracted, by changing the position of the image type data and the shape of the image type data.” The present invention employs the trapezoidal correction for correcting fan-out on print data before the print data is converted into a printing-plate creation data. The correction includes changing the position of the image type data and the shape of the image type data, and creating the print data subjected to the correction in terms of elongation or contraction into a state closer to a shape of a deformed printing medium. After converting the print data into the printing-plate creation data, the invention enables matching the positions of the previously printed print image and the subsequently printed print image with each other with excellent precision without performing processes of such as correcting a position of an imaging device. As a result, it is possible to significantly increase print quality.

In contrast, the cited references do not teach the above feature. Endo et al. generally refers to using trapezoidal correction, but it is impossible to precisely correct the fan-out deformed into a trapezoidal shape by the correction described in Endo et al. Generally, print data for imaging on a printing plate is processed by a RIP (raster image processor) as binarized data. When creating the binarized data, special care is taken to prevent deterioration of the print quality, such as moiré. A procedure or technique for generating dots for each plate is applied, where for example, four plates of cyan(C), magenta(M), yellow(Y), and black(K) are overlapped to each other in a RIP. Thus, print data is not merely converted into binarized data, but also is binarized while taking into account the relationship between the print data and that of the other printing plate.

When print data is subjected to trapezoidal correction based on the aforesaid binarized data after the binarization process, it is necessary to perform the processes, such as moving each corresponding dot, adding dots, or omitting dots, on a dot-by-dot process. However, after the print data is binarized, there is no way or means to determine what kind of care has been made when the data is binarized. Thus, it is not practically possible to perform trapezoidal correction while care is being made in the same manner as in the RIP.

Thus, when the print data is processed by RIP, dot-by-dot correction is made to data, and the data is so designated as to allow the data to be optimal primarily when four plates of C, M, K, and Y have been overlapped to each other. Owing to this, if the trapezoidal correction is additionally performed, a problem might arise in which the dot shape is changed to a shape which is different from the shape intended at the stage of the dot designing. Therefore, the correction of data itself for creating printing plate after the binarization process would not have been easily conceived by a person skilled in the art, and hence the correction must be made by the machine-side. This creates the necessity to provide a correction unit or device for each imaging device, which causes problems in which the cost for those devices is increased, and the difficulty of stably operating the printing plate creation device. In addition, even the correction under the mechanical control cannot still solve a problem of the dot displacement (cf. pp.4-5, paragraph 0006 of the specification).

In contrast, the pending claims recite that print data subjected to trapezoidal correction prior to the binarization process is created. Therefore, "print data is elongated or contracted by changing the position of the image type data and the shape of the image type data." Accordingly, a printing plate is created without intervening process, following the dot-process based on the print data subjected to trapezoidal correction. With this process, a problem of the aforesaid dot displacement is not created, and the print quality can be improved. In addition, the present invention can omit the necessity to correct the imaging device, thereby reducing device cost and required operating stability.

Therefore, none of the cited references disclose or suggest, individually or in combination, the above features. The trapezoidal correction for fan-out described in the cited references may correct control of the imaging device, but not to elongate or contract print data by changing the position of the image type data and the shape of the image type data.

Claim 2 depends from claim 1, and is therefore allowable for at least the same reasons as claim 1.

35 U.S.C. §103

Claims 5-7

Claims 5-7 are rejected under 35 U.S.C. §103(a), as being unpatentable over Endo, et al. (U.S. Patent No. 6,637,327 B2) in view of Weichmann, et al. (U.S. Patent No. 6,580,524 B1) in further view of Shiraishi (U.S. Patent No. 6,999,200 B2).

Regarding claim 5, Endo et al. fails to describe the features "wherein the instructions to create the print data for the print image includes: instructions to determine deformation information of a print image downstream from the print image during printing of the downstream print image in the printing device, the deformation information indicating an amount of elongation or contraction correction to be applied to the printing medium in a direction the printing medium is to be elongated or contracted" and "instructions to adjust one or more of the position and the shape of the print image without performing mechanical position or shape correction in the printing device including correcting the image type data of the print image by changing the position of the image type data in the print image and the shape of the image type data in the print image based on corresponding position data and the deformation information of the downstream print image" as discussed above with regards to claim 1. The other cited references, neither individually nor in combination, teach these limitations. Therefore, claim 5 is allowable over the cited references.

Regarding claim 6, Endo et al. fails to describe the features "wherein the instructions for creating the print data include: instructions to determine deformation information on an amount of elongation or contraction in a direction in which the printing medium is to be elongated or contracted based on a previously printed print image while the previously printed print image is being printed to the printing medium using the plurality of printing plates" and "instructions to adjust one or more of the position and the shape of the print image without performing mechanical position or shape correction in the printing device including correcting the image type data of the print image in terms of elongation or contraction in the direction in which the printing medium is to be elongated or contracted

by changing the position of the image type data and the shape of the image type data based on corresponding position data and the deformation information of the previously printed print image; and instructions to generate the print data for the print image subjected to the elongation or contraction correction" as discussed above with regards to claim 1. The other cited references, neither individually nor in combination, teach these limitations. Therefore, claim 6 is allowable over the cited references.

Regarding claim 7, Endo et al. fails to describe "wherein creating the print data for the print image includes: determining deformation information of a print image downstream from the print image during printing of the downstream print image, the deformation information including an amount of elongation or contraction correction to be applied to the printing medium in a direction the printing medium is to be elongated or contracted" and "adjusting one or more of the position and the shape of the print image without performing mechanical position or shape correction in the printing device including correcting the image type data of the print image by changing the position of the image type data and the shape of the image type data based on the deformation information of the downstream print image; and generating the print data for the print image based on the corrected image type data to match print positions of the print image with corresponding print positions of the downstream print image" as discussed above with regards to claim 1. The other cited references, neither individually nor in combination, teach these limitations. Therefore, claim 7 is allowable over the cited references.

For the foregoing reasons, the present application is believed to be in condition for allowance, and such action is earnestly requested.

CONCLUSION

In light of the amendments and the preceding arguments, the Applicants respectfully requests that the Examiner withdraw all rejections and issue a Notice of Allowance.

If the Examiner believes that a conference would be of value in expediting the prosecution of this application, he is cordially invited to telephone the undersigned counsel at (650) 838-4382 to arrange for such a conference.

The Commissioner is authorized to credit any overpayments or charge any underpayments fees to Deposit Account No. 50-2207.

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